

WHAT IS CLAIMED IS:

1. A packet transmission method in a mobile communications network system for routing a packet using an IP address between a user in a mobile communications network system and a user inside or outside the mobile communications network system, said packet transmission method comprising the steps of:
  - 10 storing a location address and a user identifier of the user in the mobile communications network system into the IP address within a packet transmitted and/or received by the user in the mobile communications network system; and
  - 15 routing the packet in accordance with the location address and the user identifier in the IP address.
2. The packet transmission method as claimed in claim 1, wherein the location address has a hierarchical structure.
- 20 3. The packet transmission method as claimed in claim 2, wherein the hierarchical structure comprises at least a network identifier indicating a subdivided network of the mobile communications network, and a node identifier provided in connection with a termination node of an access link in the network.
- 25 4. The packet transmission method as claimed in claim 3,

further comprising the steps of:

routing the packet to the network in accordance with  
the network identifier;

5 routing the packet to the termination node in  
accordance with the node identifier; and

transmitting the packet from the termination node by  
selecting an access link of a related mobile communications  
network in accordance with the user identifier.

10 5. The packet transmission method as claimed in claim 3,  
further comprising the steps of:

routing the packet to the termination node, referring  
to the location address in its entirety; and

15 transmitting the packet from the termination node by  
selecting an access link of a related mobile communications  
network in accordance with the user identifier.

20 6. The packet transmission method as claimed in claim 1,  
wherein at least the location address constituting the IP  
address is transmitted to the user in the mobile  
communications network system or to the user inside or  
outside the mobile communications network system, when an  
access link is established between the user in the mobile  
communications network system and the mobile  
25 communications network system.

7. The packet transmission method as claimed in claim 6,

*SUB* further comprising the steps of:

storing an IP address in connection with a domain name in a database in a domain-name server;

5 having the domain-name server send the IP address back to the user in the mobile communications network system or to the user inside or outside mobile communications network system in response to an inquiry from the user about the IP address using the domain name; and

10 having the user that sends the inquiry carry out a packet communication using the IP address sent back.

8. The packet transmission method as claimed in claim 7, wherein when the inquiry is sent to the domain-name server, if the access link is not established then an access link  
15 is established.

9. The packet transmission method as claimed in claim 7  
or 8, wherein the domain-name server generates the IP address by acquiring from the mobile communications  
20 network system a location address of the user in the mobile communications network system.

10. The packet transmission method as claimed in ~~any one~~  
~~of claims 1-9~~, wherein the packet including the IP address  
25 is routed in accordance with the IP address with or without encapsulating the packet.

*Claim 1*

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10 11. A packet transmission system in a mobile communications network system for routing a packet using an IP address between a user in a mobile communications network system and a user inside or outside the mobile communications network system, said packet transmission system comprising:

means for storing a location address and a user identifier of the user in the mobile communications network system into the IP address within a packet transmitted and/or received by the user in the mobile communications network system; and

means for routing the packet in accordance with the location address and the user identifier in the IP address.

15 12. The packet transmission system as claimed in claim 11, wherein the location address has a hierarchical structure.

20 13. The packet transmission system as claimed in claim 12, wherein the hierarchical structure comprises at least a network identifier indicating a subdivided network of the mobile communications network, and a node identifier provided in connection with a termination node of an access link in the network.

25 14. The packet transmission system as claimed in claim 13, further comprising:

means for routing the packet to the network in

accordance with the network identifier;  
means for routing the packet to the termination node  
in accordance with the node identifier; and  
means for transmitting the packet from the termination  
5 node by selecting an access link of a related mobile  
communications network in accordance with the user  
identifier.

15. The packet transmission system as claimed in claim 13,  
further comprising:

means for routing the packet to the termination node,  
referring to the location address in its entirety; and  
means for transmitting the packet from the termination  
node by selecting an access link of a related mobile  
15 communications network in accordance with the user  
identifier.

16. The packet transmission system as claimed in claim 11,  
wherein at least the location address constituting the IP  
20 address is transmitted to the user in the mobile  
communications network system or to the user inside or  
outside the mobile communications network system, when an  
access link is established between the user in the mobile  
communications network system and the mobile  
25 communications network system.

17. The packet transmission system as claimed in claim 16,

*Sub* 10 further comprising:

a domain-name server including a database storing an IP address in connection with a domain name;

means for having the domain-name server send the IP address back to the user in the mobile communications network system or to the user inside or outside mobile communications network system in response to an inquiry from the user about the IP address using the domain name; and

means for having the user that sends the inquiry carry out a packet communication using the IP address sent back.

18. The packet transmission system as claimed in claim 17, wherein when the inquiry is sent to the domain-name server,

15 if the access link is not established then an access link is established.

19. The packet transmission system as claimed in claim 17  
~~or 18~~, wherein the domain-name server generates the IP

20 address by acquiring from the mobile communications network system a location address of the user in the mobile communications network system.

25 20. The packet transmission system as claimed in claim 11,

further comprising a domain-name server including a database for storing an access link termination node in a subdivided network in the mobile communications network

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in connection with an IP address and a domain name; wherein said access link termination node includes:

access link management means for establishing or releasing an access link;

5 means for storing the location address;

means for storing user location registration information in a memory in response to a location registration request from a user, and for providing the user with the location address of the user; and

means for transmitting the user location registration information to the domain-name server in response to the location registration request from the user, and

wherein said domain-name server includes:

means for storing the IP address including the location address of the user;

means for receiving the user location registration information from the access link termination node; and

means for updating the IP address using the user location registration information received.

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Claim 11

21. The packet transmission system as claimed in ~~any one of claims 11-20~~, wherein the packet including the IP address is routed in accordance with the IP address with or without encapsulating the packet.

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22. A packet data transmission medium in a mobile communications network system for routing a packet using

an IP address between a user in a mobile communications network system and a user inside or outside the mobile communications network system, said packet data transmission medium storing a location address and a user identifier of the user in the mobile communications network system into the IP address within a packet transmitted and/or received by the user in the mobile communications network system.

10 23. The packet data transmission medium as claimed in claim 22, wherein the location address has a hierarchical structure.

15 24. The packet data transmission medium as claimed in claim 23, wherein the hierarchical structure comprises at least a network identifier indicating a subdivided network of the mobile communications network, and a node identifier provided in connection with a termination node of an access link in the network.

20 25. The packet data transmission medium as claimed in ~~any~~ <sup>Claim 22</sup> one of claims 22-24, wherein the packet data transmission medium consists of a packet data signal.